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NON-GRAMMATICAL APOPHONY IN ENGLISH.

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AN APOPHONE MAY BE DEFINED GENERALLY AS A POLYSYLLABIC VOWEL SEQUENCE SUCH THAT EACH CONTAINED VOWEL IS LOWER OR MORE RETRACTED THAN THE VOWEL WHICH PRECEDES IT --"SING, SANG, SUNG," AND "CLINK, CLANK, CLUNK" ARE EXAMPLES IN ENGLISH. FOR NEARLY EVERY CASE OF GRAMMATICAL APOPHONY IN ENGLISH THERE IS A NON-GRAMMATICAL (YET SEMANTICALLY SIGNIFICANT) ANALOG. THE AUTHOR AGREES WITH SWADESH THAT THERE ARE "PERSUASIVE REASONS" FOR REGARDING GRAMMATICAL APOPHONY AS A DERIVATIVE OF NON-GRAMMATICAL APOPHONY. THE LATTER MAY BE CLASSIFIED IN TERMS OF A NUMBER OF BINARY OPPOSITIONS--(1) DYADIC, "KITTY-CAT" VS. TRIADIC, "TIC-TAC-TOE," (2) ECHOIC, "RIFF-RAFF" VS. NON-ECHOIC, "WHIZ-BANG," (3) MICROPHONIC, "HIP, HEP" VS. MACROPHONIC, "TU-WHIT, TO-WHOO" AND (4) CANONICAL, "ZIGZAG" VS. NON-CANONICAL, "FRESHMAN, FROSH." EXCEPT WHERE IT INTERSECTS WITH THE GRAMMATICAL SYSTEM (SPECIFICALLY IN THE CASE OF ENGLISH "STRONG VERBS") APOPHONY IS A RELATIVELY SELF-CONTAINED SYSTEM. MOREOVER, THE FACT THAT IT UTILIZES LINGUISTIC MATERIAL FROM VIRTUALLY ANY SOURCE SUGGESTS THAT IT IS ALSO A PRODUCTIVE RATHER THAN A FOSSILIZED SYSTEM. APOPHONY AND ECHOLALIA (IMITATIVE OR REPETITIVE SPEECH) MAY SEEM FUNCTIONALLY ANTITHETICAL SINCE APOPHONY DEPENDS ON ALTERATION OF SOUNDS, WHEREAS ECHOLALIA DEPENDS ON THEIR REPETITION. THE AUTHOR FEELS, HOWEVER, THAT THEY ARE MORE LIKE "THEME-AND-VARIATION IN MUSIC" AND THAT APOPHONY SHOULD BE TREATED AS A SPECIAL CASE OF ECHOLALIA. HE FURTHER NOTES THAT THE VAST MAJORITY OF THE WORLD'S LANGUAGES, BOTH INSIDE AND OUTSIDE THE INDO-EUROPEAN GROUP, CONTAIN "SOUND-EFFECT WORDS" EXHIBITING WHAT HE TERMS "NORMAL APOPHONIC SEQUENCE." THIS PAPER WAS PRESENTED AT THE ANNUAL MEETING OF THE LINGUISTIC CIRCLE OF NEW YORK, HELD IN NEW YORK CITY ON MARCH 9, 1968. (AMM)

NON-GRAMMATICAL APOPHONY IN ENGLISH

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For most purposes, an apophone may be defined as a polysyllabic vowel sequence such that each contained vowel is lower or more retracted than the vowel which precedes it. In English, there are many other such sequences than those found in verb paradigms like sing, sang, sung. There is, for example, the non-temporal series clink, clank, clunk.

In fact, nearby every case of grammatical apophony found in English has a non-grammatical (yet semantically significant) analog. Even if we confine ourselves to one-term apophonic variants of words containing the stressed long high nucleus iy, we find, I think, an impressive parallelism, as in Table 1:

TABLE 1: GRAMMATICAL VS. NON-GRAMMATICAL APOPHONY

iy - i	deep; dip	tweet, twitter
iy - ey	eat, ate	Jean, Jane
iy - e	keep, kept	zeal, zest
iy - ay	flee; flight	teeny, tiny
iy - ɔ	sheer, shorn	see-saw
iy - ə	bleed; blood	steed, stud
iy - ow	these, those	creak, croak
iy - u	beech, book	peek, look
iy - uw	feed; food	gleam, gloom

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Though space does not permit my detailing them here, Swadesh has presented elsewhere what I regard as persuasive reasons for regarding grammatical apophony as a derivative of non-grammatical apophony.

Non-grammatical apophones may be classified in terms of a number of binary oppositions, of which the first is that of dyadic (e.g., kitty-cat) vs. triadic (e.g., tic-tac-to). Presumably, one of these two types is ultimately derived from the other, though whether dyads are truncated triads or triads expanded dyads remains a question. Swadesh, it seems, would grant priority to triadic apophony.

A second such typological opposition is that of echoic (e.g., riff-raff) vs. non-echoic (e.g., whiz-bang). Echoic apophones contain not only descending or retreating vowel-sequences but consonant repetitions as well. Non-echoic apophones exhibit no repetition of consonants.

A third apophonic opposition is that of microphonic (e.g., hip, hep) vs. macrophonic (e.g., tu-whit, tu-whoo). To clarify this distinction, we must first define the term "macrophone". As used here, a macrophone is a group of phonetically similar vowel nuclei. More specifically, I recognize three English macrophones -- the first represented as I, the second as A, and the third as U.

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I includes i, e, iy, ey, and ay; A includes æ, a, ɔ, ah, and ɔh; and U includes ə, u, aw, ow, and uw. A microphonic sequence, then, is one composed of two or more vowels belonging to the same macrophone; while a macrophonic sequence is composed of vowels belonging to different macrophones.

A final binary opposition is that of canonical (e.g., zigzag) vs. non-canonical (e.g., Freshman, "Frosh"). A canonical apophone is a vowel sequence of a type that is common, familiar, and productive; while a non-canonical apophone is a sequence of a type that is rare, unfamiliar, and fossilized. Since familiarity and productivity are difficult to assess by an objective criterion, I shall here confine myself to documenting commonness in terms of frequency of occurrence. (For the past three years, I have been collecting apophones and filing them in notebooks. My frequency estimates are based on these files.) Relative frequencies of apophonic occurrence are listed in Table 2.

TABLE 2: ORDER OF APOPHONIC CANONICITY

macrophonic type	microphonic type	approximate number of items	representative example
I-A	i - æ	200	chit-chat
I-U	i - ə	140	crispy crunchy
I-A	i - a	100	tick-tock
A-U	æ - ə	80	stammer, stutter
I-U	iy - uw	60	tweet, toot
I-U	i - uw	35	sip soup
I-A	e - a	30	wend, wander
A-U	a - ə	30	slosh, slush
I-A	iy - ɔh	25	hee-haw
I-A	e - æ	20	step, stamp
I-U	e - ə	20	hem, hum
I-A-U	i - æ - ə	20	chitter, chatter, chutter

If, instead of focusing on macrophonic types, we focus on macrophonic types, we obtain a somewhat different -- though of course grosser -- scale of apophonic canonicity. In these terms, type I-A (e.g., clink, clank) is most canonical, with 5 times 5, or 25, subtypes and about 610 examples in my file. Type I-U (e.g., clink, clunk) is next most canonical, with 25 subtypes and about 520 examples. Type A-U (e.g., clank, clunk) is less canonical, with 25 subtypes but only about 270 examples. And type I-A-U (e.g., clink, clank, clunk) is least canonical; for, although in theory it could have 5x5x5, or 125, subtypes, in my file only about 50 of these are represented by about 140 specific apophonic sequences.

These four binary oppositions are then cross-cut by four trinary oppositions, making a subtotal of 8x12, or 96, apophonic categories available for the classification of individual apophones. The first of these trinary oppositions is that of front-to-central vs. front-to-back vs. central-to-back vocalism, illustrated by the series knick-knack vs. sniff snuff vs. grab grub. (The relative frequencies of these three apophonic types ~~were~~ were assessed in the preceding paragraph.)

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The second trinary opposition is that between metrically simple vs. iambic vs. dactylic syllabifications, illustrated by sing-song vs. shilly-shally vs. hippety-hoppety. In terms of frequency, these three metric types stand to one another in the approximate proportion of 30-to-13-to-1. (There are, however, almost as many syllabically unbalanced as syllabically balanced apophonic compounds. Compounds of the 1-to-2 type, like pick-pocket, are about as common as those of the 2-to-2 type, like fiddle-faddle. And compounds of the 2-to-1 type, like ticky-tack, are about as common as those of the 3-to-1 type, like clickety-clack, these two in combination being, in turn, about as common as balanced compounds of the shilly-shally type.)

The third trinary opposition is that between internally distinct apophonic prosodies, which may be phrased as disjuncturally minimal vs. intermediate vs. maximal. The compound criss-cross contains a minimal disjuncture (also called a plus juncture or open transition); the compound tip-top contains an intermediate disjuncture (variably termed a gap, break, or pause); and the apophonic phrase this, that, and the other contains two maximal disjunctures (alternatively known as sustained intonations, and exceeded in duration only by descending terminals.)

The last trinary opposition (which cross-cuts only echoic apophony) concerns consonant-repetition in apophones, which may occur either before the stressed vowels, after them, both before and after them, or neither before nor after them. In the first case we have alliterant apophony, as in spic and span; in the second case, reliterant apophony, as in Think Tank; and in the third case, circumsonant apophony, as in zigzag. Earlier I said that non-grammatical apophony is semantically significant. I would now add that, to my mind at least, it constitutes impressive evidence for the reality of "sound symbolism" (more accurately, "phonetic iconism") -- that is, of an inherent meaning in sound-units which, unlike the meaning in form-units, is not arbitrary in nature. As Sapir pointed out long ago, high front vowels can be produced only by an oral cavity that is relatively small and constricted and low back vowels only by a cavity that is relatively large and resonant. Iconically, therefore, English nuclei like iy and i automatically suggest shrillness -- and, by extension, smallness, quickness, brightness, goodness, and incipiency, as illustrated in Table 3.

TABLE 3: APOPHONIC ANTONYMY IN ENGLISH

I.	Iconic					
1	high	vs.	low	hill	vs.	hole
2	front		back	tit		tutt
3	shallow		deep	daze		doze
4	friable		glutinous	lime		loam
5	liquid		solid	pee		poo
6	watery		viscous	piss		pus
7	weak		strong	gimpy		gamb
II.	Quantitative					
1	small	vs.	large	chick	vs.	cock
2	short		long	flit		fly
3	slender		broad	spit		spatter
4	light		heavy	lift		lug
5	empty		full	chink		chunk
6	fewer		more	many		most
7	infant		adult	kitten		cat
8	female		male	Jane		John
9	near		far	this		that
10	self		other	I		thou
III.	Synesthetic					
1	surd	vs.	voiced	hiss	vs.	hum
2	articulate		speechless	yak		yuk
3	clear		muffled	rattle		rumble
4	bright		dim	glare		glower
5	pale		dark	bleach		blotch
6	visual		auditory	grin		grunt
7	sharp		blunt	stab		stub
IV.	Emotive					
1	good	vs.	bad	weal	vs.	woe
2	neat		messy	slim		slum
3	radiant		dull	gleam		gloom
4	affectionate		reserved	Kitty		Katherine
5	happy		sad	glad		glum
6	silly		sober	ninny		nanny
7	tasty		unappetizing	sweet		sour
V.	Kinetic					
1	fresh	vs.	stale	crap	vs.	crud
2	quick		slow	trip		trudge
3	sudden		prolonged	sneeze		snooze
4	excited		calm	cry		croon
5	extreme		moderate	cold		cool
6	violent		slight	bash		bump

VI. Diachronic

1	stimulus	vs.	response	itch	vs.	scratch
2	beginning		end	step		stop

VII. Grammatical

1	interrogative	vs.	responsive	eh?	vs.	oh!
2	present		past	sit		sat
3	durative		completive	sing		sung
4	action		agent	shriek		shrike
5	behavior		means	ride		road
6	process		result	sing		song
7	exertion		goal	think		thought
8	participial		adjectival	melted		molten
9	adjectival		nominal	stiff		staff
10	subject		object	ye		you
11	definite		indefinite	he		who

One of the most striking differences between grammatical and non-grammatical apophones, as the preceding table should make clear, is that, while the former always show etymological homogeneity, the latter do not. Grammatical sequences like sit, sat are wholly native and ultimately identical in base; but non-grammatical sequences like Nip, Wop are at least partly foreign and apparently unrelated. Non-grammatical apophones can equally well be all-native, as in the case of quiver, quaver; half-foreign, as with fib, fable; or all-foreign, as with Jim, James. Furthermore, it is apparently a matter of indifference whether foreign-derived apophones come from Romanic, as in the case of mister, master; from Hellenic, as with Kitty, Kathy; or even from Semitic, as with Jenny, Johnny.

What all this suggests, of course, is that, except where it intersects with the grammatical system (specifically, in the case of English, with the so-called "strong" verbs), apophony is a relatively self-contained system. Moreover, the fact that it utilizes linguistic material from virtually any source suggests that it is also a productive rather than a fossilized system.

In terms of its external relationships, what remains most uncertain about apophony is its connection, if any, with echolalia -- this latter term being here defined as imitative or repetitive speech, typically manifested in rhyming compounds like bow-wow. At first, apophony and echolalia seem functionally antithetical, since apophony depends on alteration of sounds, whereas scholalia depends on their repetition. On more careful inspection, however, the two come to seem more like theme-and-variation in music -- frequently interdigitating and generally more effective when they are so. Echolalic apophones like ding-dong, for example, are far more productive than pure apophones like ding-busted. All things considered, it seems best to me to treat apophony as a special case of echolalia, in the sense in which all alternation tends toward, but fails to achieve, complete repetition. And while it is true that apophones contain internal semantic contrasts that other echolalics do not, it is also -- and, I think, more significantly -- true that the more canonical apophones, like sing-song, are themselves imitative (of foreign speech, animal vocalization, or any audible pitch-shift).

Whatever view we take of echolalia, however, it now seems difficult to deny the reality of polysyllabic vowel apophony outside verb paradigms of the dig, dug type. What is less clear is whether such non-grammatical apophony can also be monosyllabic or consonantal in nature. My own inclination is to say that it can, but the evidence is admittedly sparse. The only endosyllabic front-to-back vowel sequence that occurs with any frequency in English is the diphthongal nucleus aw, as in ouch, owl, pow-wow, growl, and shout out loud. And we can call it apophonic only by shifting the ground we took earlier and treating complex nuclei as two-vowel sequences rather than as single vocalic units. If we do this, then aw must be macrophonically transcribed as AU rather than as U. But if we treat post-vocalic glides as vowels, it seems arbitrary not to do the same with pre-vocalic glides, so that y, h and w become macrophonically I, A, and U in all positions. If we follow this procedure, we can amass an appreciable inventory of monosyllabic apophones, as in Table 4.

TABLE 4: ENDOSYLLABIC APOPHONY IN ENGLISH

II	yip, yelp, yell
IA	yak, yap, yawp
IU	yuk
AA	ah
AU	ow, growl
III	yay
IIA	yeah
IAU	yow, yowl
IUU	yo

Apophonic consonant alternation is harder to establish, at least with any clarity of semantic contrast. Series like crumple, crumble or bash, dash, gash, are not difficult to find; but to formulate the meaning of the voiceless vs. voiced or labial vs. dental vs. velar opposition is difficult indeed. On the other hand, there are some consonant alternations that are semantically less opaque. Stops and laterals, for example, seem to have the same diminutive force as high front vowels, while fricatives and apicals seem to have the same augmentative force as low back vowels. (Consonants that fall into none of these categories seem, for the most part, to constitute a neutral third category intermediate between the diminutive and the augmentative -- a category analogous to the central vowel in a three-vowel apophonic sequence.) Such non-vocalic apophony is illustrated in Table 5.

TABLE 5: CONSONANTAL APOPHONY IN ENGLISH

diminutive	neutral	augmentative
chirp	chirr	
twinkle	wink	
plop		flop
titty		sissy
hack		hash
hello		hurrah
	quash	squash
	yen	yearn
cockle	cock	cocker

A final problem in the analysis of English apophony is the status of what we may call "reverse apophones". These are apophone-like vowel-sequences, like Jack and Jill, Tom Tit, or money-mad, whose vowel-order is low-back to high-front -- the reverse of what we find in the vast majority of such utterances. While it is possible that reverse apophony stands in some subtle semantic contrast to normal apophony, it seems to me more likely either that it is accidental or that it is the inevitable result of the supersession of phonic by grammatical considerations.

In this connection, it is interesting to note that the vast majority of the world's languages, both inside and outside the Indo-European group, contain "sound-effect words" exhibiting what we have here termed normal apophonic sequence. But in at least one language, Tungus (in the Altaic group), although vowel iconism is similar to that of English (e.g., xexe, "woman" vs. xaxa, "man"), the vowel-sequence in apophonic compounds is the reverse of ours, Tungus pata-piti meaning the same as, but contrasting in order with, English pitter-patter.